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THE CANADIAN GEOGRAPHICAL SOCIETY

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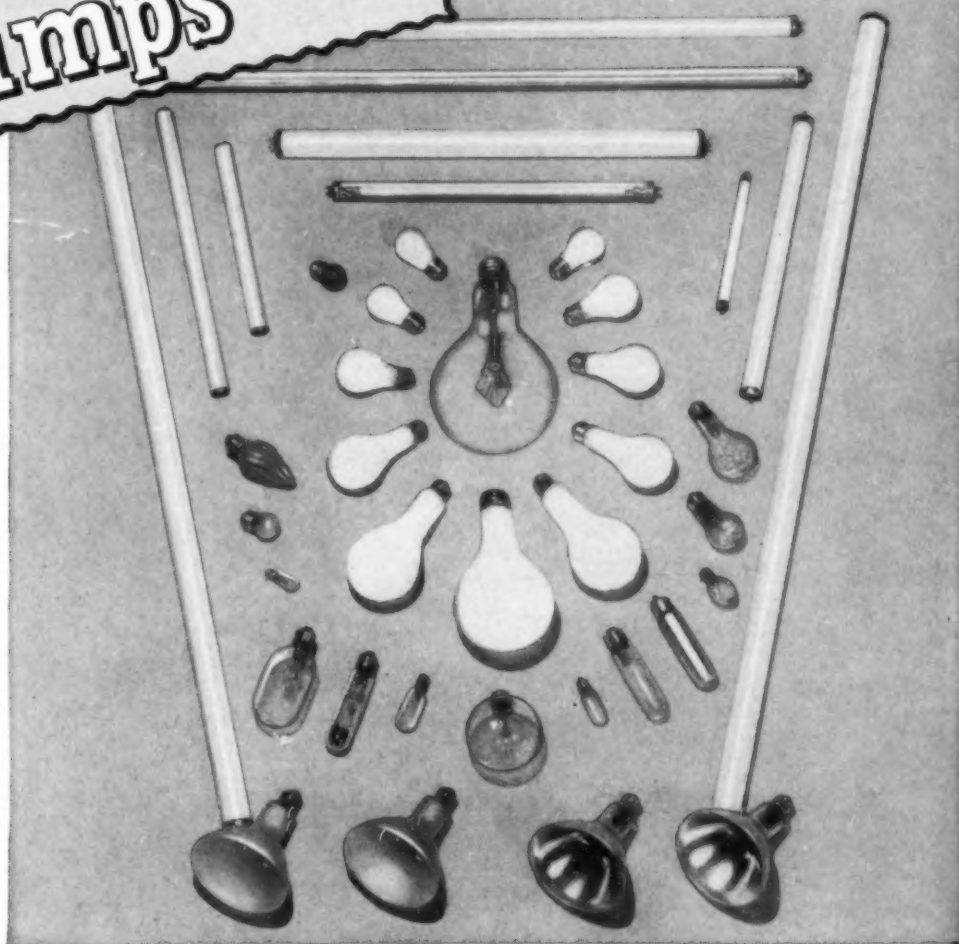
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Kodachrome courtesy Nova Scotia Bureau of Information

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Left:—The broad Atlantic lapping the shores of Cape Breton Island.

Nova Scotia Bureau of Information photograph



*The Junkers aircraft arriving at Haworth Lake in the Lloyd George Mountains.
Looking south towards the Cloudmaker.*



The party was flown in and established its base camp by the lake. Llanberis Glacier in the distance.



Exploration of the Lloyd George Mountains in British Columbia

by N. E. ODELL

Photographs by the author

ALTHOUGH for many years it has been realized that the Canadian portion of the Rocky Mountains proper extends from the Montana border for over 900 miles northward into Yukon, yet almost the entire northern half of the great range, lying eastward of the Rocky Mountains Trench, has remained singularly unknown. Particularly can this be said to apply to that part of it situated north of latitude 56° and south of the Alaska Highway. The carrying out of the latter war-time project, and the reconnaissance flights associated with it, gave increased facilities for an aerial view of the region, and many photographs of the moun-

tain groups were taken, these photographs eventually becoming available for inspection by the public in the National Air Photographic Library at Ottawa.

But, it should not be forgotten that the numerous flights undertaken previously by the Air Survey Section of the British Columbia Forest Service, in particular over the districts lying westward of the Rocky Mountains Trench, had provided valuable data for later ground exploration. Moreover, it must be noted that S. L. Diack, during a private flight with L. B. Kingery and Donald Phillips from Finlay Forks in 1937, had secured most interesting photographs of the

At top:—The head of Haworth Lake from the northwest. The base camp was sheltered by the forest near the shore in centre foreground.

high ranges situated eastward of the Trench, and in particular of the Lloyd George Mountains, already named, but as yet unvisited.¹

However, the first white man to record the presence in the region of high peaks and snowfields, lying north of latitude 57° and east of the Trench, was R. G. McConnell during his exploration of the Finlay and Omineca Rivers in 1893 on behalf of the Geological Survey of Canada.² The next visitors to the outlying region appear to have been H. Footner, who in 1911 travelled along the Parsnip, Peace and Hay Rivers; and F. K. Vreeland, exploring for the Biological Survey, who came with pack-horses from Hudson Hope on the Peace River in 1912, and reached Laurier Pass in latitude 56° 50'.

We then have the two determined canoe journeys of P. L. Haworth in 1916 and 1919; he was accompanied in the latter year by A. P. Chesterfield. These were described in *Scribner's Magazine* in 1917 and 1930, and partly in book-form, *On the Headwaters of the Peace River* (1917), all by the first named traveller. It was during his first journey up the Kwadacha River that Haworth sighted and named the three high snowy peaks, the "Lloyd George Mountains", after the then British Prime Minister. On the second journey in 1919, after encountering great difficulties, he and his companion succeeded in reaching a lake lying southward from the Lloyd George Mountains, whence glaciers could be seen debouching from an immense icefield. The Geographic Board of Canada gave due recognition to him in adopting his proposed nomenclature for several topographical features, and in naming Lake Haworth, which with such resolution he had reached, after him.

In 1932 an important scientific expedition was made by H. M. Raup and E. C. Abbe into the adjoining districts particularly to the south, when valuable botanical collections were made.³

Another remarkable enterprise in 1934, not perhaps so well known, was the Bedaux Sub-Arctic Expedition travelling from the

Peace River Block by way of the Muskwa River, and skirting the Lloyd George group on the southward, to gain the Finlay River at its junction with the Kwadacha River in the great Trench. This expedition was undertaken in part with Citroën half-track vehicles for some 80 miles beyond Fort St. John, and thence with pack-horses or boats. It was accompanied by Mr. F. C. Swannell, Dominion and British Columbia Land Surveyor, who made a traverse-survey of the country passed through. It should be added (from personal communication) that Mr. Swannell as early as 1914 had made a sub-tense traverse up the Finlay River and occupied a triangulation station on Prairie Mountain (c. 5,000 ft.), five miles west of White-water (later Ware), from which rays were taken on to the lofty peaks and extensive glaciers situated to the northeastward, viz., the eventual Lloyd George Mountains. This was shown on the Topographical Sketch Map, Omineca and Finlay River Basins, B.C. Dept. of Lands, 1917, and is undoubtedly the first information of geographical value which had been obtained about such lofty mountains.

These high snowy mountains clearly offered a splendid opportunity for further detailed exploration on the part of someone who was prepared to go about the work in the right way, and with due consideration of the short season available in which to operate. Such a project was discussed in 1946 by Mr. F. S. Smythe, when on a visit to the Canadian Rockies, and tentative plans for an airborne expedition were formulated with Major Rex Gibson of the Alpine Club of Canada.

Accordingly by the spring of 1947 an international party for the purpose had been organized by Mr. Smythe, all the individuals of which had climbed together in one combination or another. It was to be the first Anglo-Canadian-American enterprise of its kind; and thanks to the trans-continental and other facilities offered by the Canadian Pacific Railway in particular, we all foregathered at Jasper, Alberta, by the last week in June, 1947.

¹ J. Monroe Thorington: The Lloyd George Mountains, *Amer. Alpine Journ.* III. 1938, 143.

² *Ann. Rep., Geol. Surv. Can.* VII., 1894.

³ Hugh M. Raup: *Phytogeographic Studies in the Peace and Upper Liard River Regions, Canada*. Contributions from the Arnold Arboretum of Harvard University, 1934.

EXPLORATION OF THE LLOYD GEORGE MOUNTAINS IN BRITISH COLUMBIA

The party consisted of Mr. and Mrs. F. S. Smythe and the writer from England; Major Rex Gibson of Edmonton; Mr. Henry Hall of Cambridge, Mass., prominent for his pioneer work in the Rockies and Coast Ranges; Mr. David Wessel of Bozeman, Montana; and Mr. John Ross, president of the Harvard Mountaineering Club. Not only was our objective the exploration of the Lloyd George Mountains, but also a topographical and geological survey, a plant collection, and an aerial photographic reconnaissance of as much of the neighbouring mountain ranges as flying time and means would permit.

On July 2, four of us set off in a Central British Columbia Airways aircraft from Fort St. James on Stuart Lake. Piloted by Mr. Pat Carey, one of the company's most skilful and experienced bush pilots, we flew at first in good weather over the diversely forested and mountainous country of central British Columbia. Crossing the great broad Rocky Mountains Trench in the neighbour-

hood of the old Hudson's Bay Company's post at Ware (formerly Whitewater), we could see great masses of cloud clinging to the ranges where it was evident that the Lloyd George Mountains must lie. In the cockpit, however, armed with ample air photographs and the trimetrogon survey map (Finlay River Sheet, 1 in.—8 mls.), Smythe and Carey were soon able to identify through clearings in the clouds our objective, Haworth Lake. A fine manoeuvre brought us down into the deep valley, backed by high mountains and cascading glaciers, which held the lake and on its beautiful turquoise waters we alighted to taxi to the forested shore at its head. Each of us in his, or her, own way must have experienced a supreme thrill at this moment, thus dropped from the skies on to the surface of this exquisite mountain lake at the foot of unexplored peaks which now towered above and around us. Frank Smythe and his wife, Nona, who had volunteered to be camp-manageress

Aerial view of Haworth Lake from the southwest, backed by the Lloyd George Mountains and Icefield.



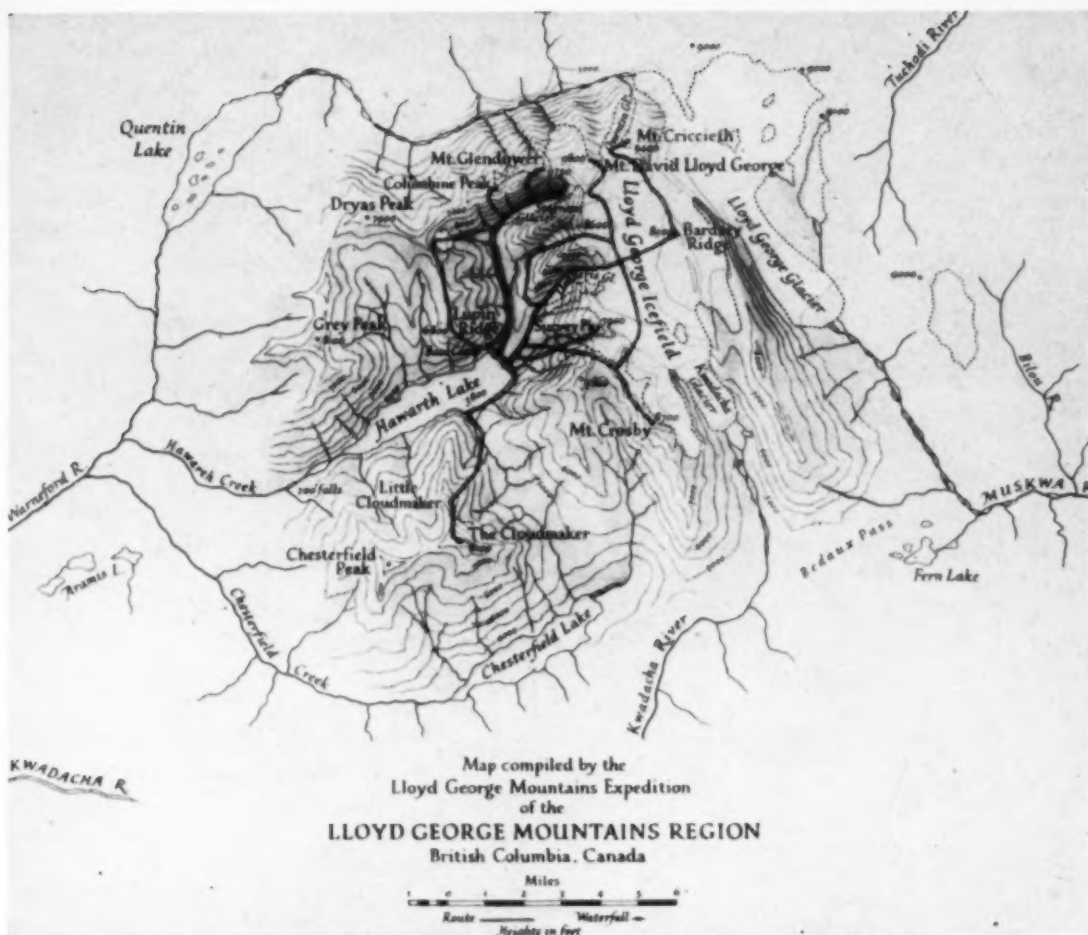
and cook, Henry Hall and myself, composed this advance party whose first task it was to select a camp-site, while the plane flew off to Fort Nelson some 150 miles distant. We had taken about 2 hours and 20 minutes for the approximate distance of 250 miles from Fort St. James to Haworth Lake; and we anticipated that the remaining three members of our party, Gibson, Wessel and Ross, who had motored up the Alaska Highway to Fort Nelson, would be able to join us before evening. It was not, however, until the following morning that they turned up. Then, owing to the restricted pay-load (1,200 lb.) of the Junkers aircraft it was necessary for it to return to Fort St. James for the remainder of our stores and equipment; but on account of bad weather it was unable to get back to us for two days.

However, with the plane still at our disposal, Smythe, Hall and myself decided on a reconnaissance flight over the vast mountain area which lay to the north and north-

west of the Lloyd George group, with the added intention of examining the easterly flanks of the latter. On the Liard River sheet of the trimetrogon survey had been inscribed such names as Churchill Peak (10,500 ft.), Mount Roosevelt (9,500 ft.), and Mount Stalin (9,500 ft.). It was naturally our aim to try to identify and examine more closely these three outstanding, and, we hoped, up-standing, summits, as well as view the possibility of access to them from other lakes which might be used as air bases. In flying northwestward over Quentin Lake and the headwaters of the Gataga River, we expected that the extra stature ascribed on the map to Churchill Peak would be sufficient to identify it. But nothing worthy of it appeared, and while many individual peaks were of fine form and sharply sculptured there was a noticeable accordance of summit level. The buff tinted and darker strata, evidently mainly limestones, outcropping in the cliffs of many peaks often showed

The maze of mountains northwest of the Lloyd George group, from the air.





Map by courtesy of the Royal Geographical Society

evidence of considerable folding; but from the air could be seen, as later markedly appeared from high points in the Lloyd George group, the ruling fault-block type of structure, tilted to give the characteristic "writing-desk" form, which is so prevalent farther south in the main chain of the Rockies. Here as elsewhere crustal pressure has operated from southwest towards northeast to provide the giant "writing-desks".

Close attention was given to one upstanding peak, corresponding with that shown at lat. $58^{\circ} 26'$ on the Liard River trimetrogon map, and this impressive upthrust wedge, with its alpine arêtes and profound precipices, we concluded might be Mount Roosevelt; it was duly given much photographic attention from our flying-altitude of about 10,000 ft. Northwestward, beyond Muncho Lake and the alignment of the Alaska Highway, towards the Liard River, there could





The three peaks of the Lloyd George Mountains, (left to right) Mount Glendower, Mount David Lloyd George and Mount Criccieth, viewed from Mount Crosby (8,700 feet).

be seen to be a general falling off in altitude of the country, and a cessation of the abruptly folded ranges which make up the Canadian Rocky Mountains proper. In fact, the eastward flowing Liard River, bounding this belt of mountains on the north, would seem to mark the true northern limit of the Rockies, as originally suggested by R. G. McConnell and again more recently described by M. S. Hedley and S. S. Holland and by Professor M. Y. Williams.⁴ These relationships, again, are clearly shown in the new physiographic map by Dr. H. S. Bostock, just to hand.⁵ On the latter map, incidentally, Churchill Peak is given a supreme position to the exclusion of all others in the area.

In continuing our flight along and over the northeastern side of this great group of mountains we endeavoured, though without complete success, to identify Mount Stalin

in the vicinity of Tuchodi Lake; several peaks seemed to be of approximately equal prominence in this area. Moreover, we could see great, or even greater, mountains to the southeast, situated along the 124° meridian, names such as Great Snow Mountain (9,500 ft.) appearing on the Finlay River Sheet, and others (Mounts Redfern, McCusker), of equivalent altitude, on the Hudson Hope Sheet. Low cloud masses and a general threat of bad weather unfortunately prevented our extending the flight in that direction. The final phase of this most interesting reconnaissance flight of some 250 miles in all brought us over the Lloyd George Icefield and circling round the culminating peaks of the group. We little knew then that on the same day three members of our party had pioneered their way to the icefield by the steep glacier beyond our base camp, and were looking up at our aircraft circling above

⁴ M. S. Hedley and S. S. Holland: Reconnaissance in the Area of Turnagain and Upper Kechika Rivers, Northern B.C., B.C. Dept. of Mines, Bull. 12, 1941. M.Y. Williams: The Canadian Rockies, Trans. Roy. Soc. Can. 41(4), 73, 1947.

⁵ H. S. Bostock: Physiographic Divisions and Subdivisions of the Canadian Cordillera, North of the Fifty-fifth Parallel, Ottawa, 1947, Dept. of Mines and Resources.

them. Our return to Haworth Lake was none too soon, for heavy rain and high wind followed; and Gibson's party had a bad time in contending with the difficulties of the descent from the icefield.

Several days of poor to bad weather now restricted us to short expeditions only. Our camp meanwhile was put in order, and developed to include a tent-cook-house, used mainly for storage, all domestic arrangements being efficiently presided over by Mrs. Smythe; full course meals were provided at the most outrageous hours. The situation here was most beautiful; we looked out on the limpid turquoise to jade-tinted waters of Haworth Lake, surrounded by towering mountain forms, from our camp-setting in unburnt primeval forest of Engelmann spruce, based by ample balsam fir, willow, alder and Labrador tea, and a lovely spread of blue lupins, blue polemoniums and other flowers. Indeed the wealth of flora in this

district, of which over 200 specimens were collected, was a delight to us all, and a surprise to Frank Smythe, who had expected far less in this respect than in those areas lying several hundred miles farther south in the Rockies. Sub-arctic plants extended as high as 7,000 ft. while the slopes below were profuse in alpines such as delphiniums, forget-me-nots, violets, gentians, purple and yellow asters, tall red and gold columbines, Indian paintbrush, fire weed (*epilobium*) and lupins. Timber-line is at approximately 5,500 ft. and the present summer snow-line was determined to lie at about 7,900 ft. The high precipitation of the area indicated by the unburnt forests, was fully confirmed by our experiences of last summer when there was scarcely a day without rain or storm. Indeed records indicate that throughout the Rocky Mountains farther south the summer of 1947 was the coldest and rainiest since 1907. This is an interesting and enviable con-

The snout of Llanberis Glacier.





The view northward from the summit of Mount David Lloyd George.

trast to the experiences of survey parties in the Omineca Mountains, some one hundred miles across the Rocky Mountains Trench to the southwestward, where, it is understood, weather conditions were relatively good and sunny throughout the summer.

From the base camp on the northern shore of Haworth Lake it was easily possible to make one's way by extensive stretches of out-wash gravels between the forests to the snout of the main glacier cascading from the icefield. This glacier, provisionally named by us the Llanberis Glacier (after its classical prototype of the Glacial Epoch in the native hills of Lord David Lloyd George), descends to an altitude of approximately 4,000 ft. By the position of its old terminal moraine, only about half a mile from the snout, there is no evidence to support Haworth's claim, already cited, that it has extended to the lake within recent time. Beyond the great rampart of blocks of the old terminal moraine, the glacier certainly has not advanced

within the Post-Pleistocene Epoch, and there would appear to have been only slow recession of its present remarkably low elevation for the latitude of $57^{\circ} 50'$. The question arises as to whether we have here, as is claimed elsewhere in the Cordilleran ranges, evidence of regional re-establishment and increase of glacierization, since the general conditions of the "climatic optimum", which a wide range of data indicate, came to an end about 2,000 B.C.

The present glacier steeply descending and literally at times cascading in its avalanching ice-masses, though about 4,500 ft. in all, offered no mean mountaineering operation in ascent. It was duly accomplished by the whole climbing party of six on July 17 to the Lloyd George Icefield, lying at 8,100 to 8,200 ft. Then followed the long traverse of some four miles across the undulating snow fields, execrably soft under a unique spell of sunshine, to the northern border where stood the graceful cone which we had con-



Looking south across part of the Lloyd George Icefield towards Mount Crosby.

sidered must be the highest peak of the group. A steep snow ridge led without undue difficulty to the restricted summit, where the combined party of British, Canadian and American mountaineers were able to exchange mutual congratulations on their achievement. Some pioneer ascents in the Rockies may have been easier or less exacting; many, no doubt more difficult, but under all the circumstances few could have given greater satisfaction to those participating than the successful attainment of the culminating point of so remote a range. That it was strictly the culminating point we were not at all certain, until readings by Abney level on to the west peak of the group indicated that the latter was inferior by about 50 feet only. Using 3,800 ft. as the altitude of Haworth Lake, by corrected aneroid and by intersection, the highest summit, provisionally named by us Mount David Lloyd George, has been computed to be 9,800 ft.⁶ The third peak of the group, tentatively

called Mount Criccieth after Lloyd George's home town, situated nearly east-north-east of the highest point, is approximately 400 feet lower, and was on a later occasion ascended by Hall, Gibson and Ross. From the highest point this east peak was an insignificant object compared with the western summit which formed a great upthrust wedge of rock, with immense precipices flanking it on the east. Our proposed name for the latter is Mount Glendower, after the great Welsh prince. The panoramic view from our summit was magnificent in the extreme: an immense sea of peaks as far as the eye could penetrate, never yet approached let alone ascended. The identification of Churchill Peak was as much an enigma as during our flight; but some of us thought, or pretended, that we were rather more certain of 'Roosevelt' and of 'Stalin.'

The Lloyd George Icefield was clearly by far the most extensive glacierized area in the whole district, although it could be seen

⁶ Frank Swannell (of the Bedaux Expedition) on his $\frac{1}{4}$ -inch map of 1935 gives the altitude of Haworth Lake as 4,300 ft. If so, this would make the height of Mount David Lloyd George to be 10,300 ft. according to our reckoning. On his map, however, Swannell ascribes 8,000-8,500 ft. only to Mount Lloyd George!



Mount Glendower (West Peak), 9,750 feet, from the summit of Mount David Lloyd George.

that some of the higher massifs had wide névé areas and big glaciers. As the result of our survey the Lloyd George Icefield was later ascertained to cover about 45 sq. miles, whilst with dependent glaciers the total area must be nearly 100 sq. miles. The highest outcrops of Mount David Lloyd George were of the prevailing sheared limestone of the district, quite barren of fossils. After an hour in calm genial conditions on the summit, we returned by the same route, though by no means satisfied as to its safety through the lower ice-fall. We arrived eventually at base camp at 10 p.m. after 17 hours absence, to find a delicious dinner with double helpings (fortified by some cherry brandy remaining from Frank Smythe's earlier birthday celebration), served up by the faithful and ever industrious Nona Smythe. A lovely delicate alpine glow slowly faded from the peaks across the lake, itself seeming more beautiful than ever that evening.

The persistently bad weather continued to hamper greatly our plans for the adequate exploration and examination of the immediate vicinity, apart from outlying areas. For a long time I despaired of finding any fossils to date the dominantly limestone series of which these mountains are composed. But eventually, when ascending with Smythe and Ross a high buttress to the east of Haworth Lake, we alighted on a rich fossil-coral horizon. Unfortunately these corals are so silicified as to be difficult to determine, but a Silurian age is at present indicated. The hard limestones, with softer beds including shales, are often highly folded and sheared, and it is to these movements perhaps, as much as to original paucity of organisms, that the absence of fossils is to be attributed. However, it can be said that the Lloyd George Mountains are in general carved out of a great thickness of Palaeozoic rocks, which have been subjected to compression from the

west, overfolded in an easterly direction, and accompanied by block-faulting, to give the characteristic "writing-desk" structure already mentioned. I found no eruptive rocks, or ore deposits, in the area. The Rocky Mountains Trench seems to be the eastern limit of such rocks, which are extensively developed in central British Columbia.

As to the pronounced sculpturing of the range, a remarkable example of erosion along a geological line of weakness lay in the deep canyon-like valley, at the eastern foot of the west peak, or Mount Glendower, which had appeared so striking from the air. Hall and I found access to this valley from our base camp, after a hard journey through a tangle of forest and a long trek over gravel flats to a high rampart of terminal moraine at an altitude of about 4,100 ft. Here a surprising and impressive sight met our gaze. A dead and stagnant glacier filled the floor of the canyon, and upon it, throughout its length of some 2.2 miles, lay a thick blanket of moraine, on the surface of which plants, such as epilobium and conifers up to 15 feet high, were growing. Only at places along the borders and in scattered sink-holes could the

dead black ice be seen. Neither the small thread-like ice-stream plastered on the head-wall, nor the possible contributions of avalanche snow from the 5,000 feet precipices surrounding it, could be deemed sufficient to nourish this glacier at the present time. The "Stagnant Glacier" would seem to be unique in the Canadian Rockies, and protected by its high enclosing walls it may have lain a-dying for a very long period. Perhaps, however, it is not to be considered a relic of the Glacial Epoch, but, like the Llanberis Glacier described above, and for the same reason, an "inheritor" of the valley since the "climatic optimum". This hypothesis is one, it must be emphasized, which calls for much further study and careful field observation in all high alpine country of the Rockies and elsewhere.

Owing to the dense bush and forest along the shores of Haworth Lake, and the distance involved, we had had serious misgivings about our ability to reach and explore the mountain group situated on the south shore of the lake, whose culminating point was dubbed by us, for obvious reasons, the Cloudmaker. Consequently a primitive

The Stagnant Glacier. Mount David Lloyd George shows at the top of the headwall, with Mount Glendower at left.

Photograph by David Wessel



raft was constructed, ceremoniously launched, and christened Nona, again for obvious reasons! Early one morning Smythe and Wessel set off to pole and paddle the skeleton craft along the forested shore. On rounding a rocky bluff a very large light-brown grizzly bear was sighted on the shore. Promptly it sprang into the water to swim towards the raft. The party were unarmed, and were standing precariously astride the raft propelling it as best they could, and at a speed never greater than one mile per hour. Yelling and splashing the water was Smythe's only defence, and just as the bear reached his feet and was about to strike, it fortunately took sufficient objection to the treatment to decide to turn back to the shore. Landing farther on, and penetrating thick bush by a good game trail en route to a lovely flower filled valley (this leads southward to the Chesterfield Lake discovered by the Bedaux Expedition of 1934) they climbed thence up the northern slopes of the Cloudmaker. Within 200 feet of the summit (alt. 8,100 ft.) they were partially struck by lightning, and were temporarily blinded. Later, they proceeded to complete the climb in a storm of wind, hail and rain, and eventually spent a comfortless night at timber-line crouching over a fire. Their return by raft next day offered no further excitement, or even bear incident. But they had clearly had two very lucky escapes!

Although in the course of our sojourn in the district we did not see very many animals, there were notable game trails in places through the forest and bush. These and sundry other evidence clearly indicated the presence of such animals as bear, moose, wapiti (elk), caribou, porcupine and wolf. The bears, which we saw on several occasions, were very much larger and rather lighter in colour than the normal grizzly and were thought to be akin to the Alaska bear. Marmots and gophers were abundant above timber-line, and the trails of mountain goats were seen in the valley of the Stagnant Glazier, zig-zagging up a steep snow contour. Haworth Lake, its outlet barred by a

waterfall some 200 feet high, contained no fish but in its turbid waters were occasionally seen translucent shrimps. Bird life was decidedly sparse.

We were extremely surprised to find in one or two places at the head of Haworth Lake old axe-cuts on some trees. Since there is no record or likelihood of trappers or prospectors having penetrated into this difficult country, it seems reasonable to attribute the tree cuts to former visits of Sekani Indians,* who are known to regard the district as their hunting preserve.

Apart from scientific work and various excursions to extend the range of our exploration and survey, the final major trip, undertaken by a party of three, was the traverse in one operation of the two highest Lloyd George summits. As well as the culminating point, Mount David, whose ascent by the whole party has already been described, the second or west peak (Mount Glendower), had been the object of assault on July 15 by two parties attempting it by different routes, both leading on to the southwest shoulder from the Stagnant Glacier. One of these parties (Gibson, Hall and Ross) alone succeeded on this occasion, the other being turned back by a dangerous "avalanchy" snow-slope. The plan was to ascend the highest peak first, and then traverse to the west peak along the high connecting ridge. Consequently, on July 26 Smythe, Wessel and the writer started off at 3 a.m. from camp. At the outset it was necessary to wade many icy-cold streams ere we could embark on the steep climb, well to the south of the original Llanberis Glacier route, which had become the standard and safer way to the icefield. Mounting out of mist-filled valleys, with their beautiful lighting effects from radiant early sun upon the billowed upper surface of the dense vapours, we made rapid progress over the hard snow and amongst the schrunds of the great icefield. In perhaps 5½ miles by this route we had reached the foot of the central peak, Mount David Lloyd George, where we halted for survey observations and a third breakfast. We had no sooner recom-

*Sekani is an Indian word which implies "People of the Rocks".

The party on the summit of Mount David Lloyd George.



menced the route of our first ascent (17 July) than heavy clouds were seen gathering in the northeast and a thunderstorm threatened. A number of thunder-heads indeed were forming in the distance and drifting towards the icefield. Shortly there was a most remarkable array of convexional columns of ascending cumulus cloud spreading at the tops and simulating erupting volcanic effects from the surrounding summits: altogether an impressive pageant, but one full of foreboding for the high adventure we had in hand.

We sheltered for an hour in the rocks of our ridge to await developments, but on the dispersal of the most ominous of the cloud-masses we continued to the summit. There we had a crowded quarter of an hour, filling in the gaps of our observations and records of our previous visit, and noting especially

all we could see of the extent of the glaciers, as well as the direction of the drainage along the northern flanks of the range, which so far we had been debarred from examining except from the air. We then embarked upon our main project of the traverse of the high pitched arête connecting Mount David and Mount Glendower (the West Peak). Down this arête and along its undulating ridge we had to proceed with the utmost care, for the snow was in uncertain condition, and the crest in places so narrow as to be scarcely the width of one's boot. In leading this section, I found that every step had to be meticulously trodden or cut, since large masses of the ridge were apt to detach themselves and plunge down the precipices on one side or other, and a slip here might have been difficult to check on the rope. The air was surprisingly still and warm, and all around were the threatening thunder clouds and remarkable rainbow effects, in one case of a three-fold character. The ridge continued, often corniced alternatively on one side or the other, and was altogether remindful of the great Bionassey arête of Mont Blanc. The passage of a sensational rock gallery led to a gap below the profound east wall of Mount Glendower. It had been our hope and intention to climb direct to the

The raft on Haworth Lake. Cloudmaker in the distance.



summit of the latter, by a route seen in profile that from afar appeared feasible and very sporting. We could now see that the direct ascent would involve perhaps several hours of steep ice and rock work, involving much step-cutting. It was already 4 p.m. and another thunderstorm was closely threatening, with ominous rumblings; such an exposed mountain face was obviously no place on which to be caught in a storm. An alternative route had to be found, or an arduous retreat made by the way we had come. By working northward down into the great névé basin draining in that direction, it appeared that a flanking movement might be effected. And so it eventuated, for we were able to continue the assault on Glendower up rotten rock and snow slopes, from the basin to the north ridge of the mountain. This led to the steep snowfields of the north-western face, to be followed by a final exhausting grind in soft snow to the extended crest of the summit. Climbing fast and without relaxation we had arrived by 6.30, but

none too soon, for mist and cloud were already enveloping the top, with obstruction to wished-for views and photography. A cairn was duly erected within seven or eight feet of the summit-cornice, on a rocky gallery which had been entirely covered at the time of Gibson, Hall and Ross's visit on the 15th. The rock itself was of a tough and compact dark limestone, with sparse stringers of white calcite, and, what was of particular interest, pinkish and brick-red encrustations in many places. The latter appears to be due to pink manganese carbonate (rhodochrosite), and is the only occurrence that had been seen in the district. This very tough limestone as a cap-rock would seem to be responsible for the pre-eminence of this mountain above its fellows.

The ever watchful Henry Hall at the base camp had spotted us through gaps in the mist, and he and the others observed our commencement of the descent at 7 p.m. It was fortunate that we had crampons with us for otherwise there would have been much delay with step-cutting on a long ice slope; but the way down the spreading southwest spur of the mountain was mostly a matter of struggling with bad snow and unpredictable holes and hollows in its surface. Eventually it was necessary, owing to the tendency of the snow to ball between the spikes of our crampons, to kick steps laboriously down the lengthy couloir of some 3,000 ft., by which the first party had made their ascent from the Stagnant Glacier. We made good speed once we had gained the valley below, and at 10.20 in dusk entered the forest. With two flash-lights between us it was easier to follow a convenient game trail than we had anticipated. But when the trail gave out, we found ourselves struggling in darkness with that exasperating obstacle of Canadian forests, namely dense small spruce. Having to our relief put up no game, though lurking eyes were fancied if not seen at places, we emerged on the outwash gravels and amongst the swollen streams of glacial melt-water which reached Haworth Lake near our camp. There we arrived at midnight to find once



Above the timber-line west of the base camp; an alpine garden with buttercups, forget-me-nots, violets, polemonium and dwarf willow.

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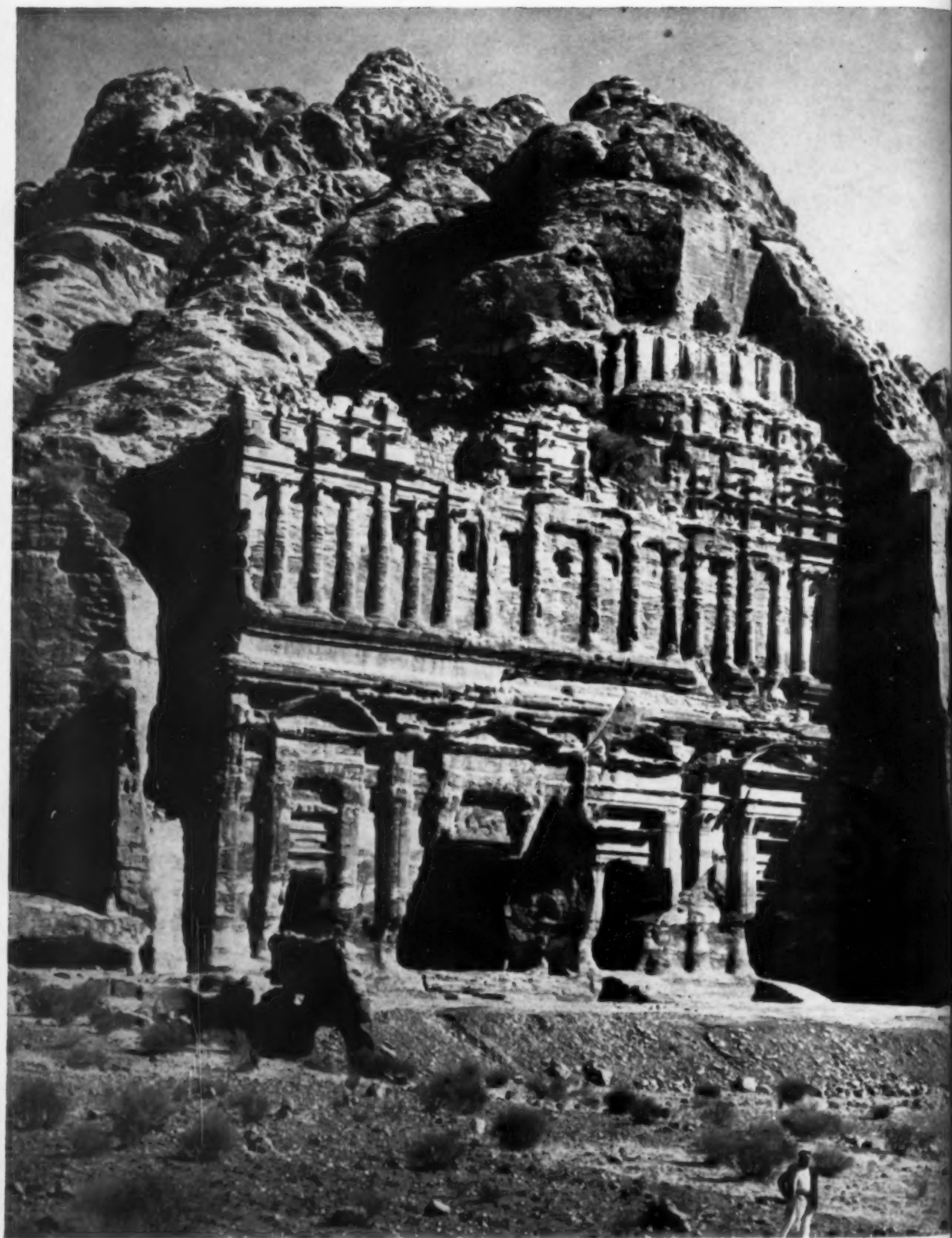
The upper icefall of Llanberis Glacier.

again a sumptuous dinner served up by the light of candle and camp-fire as had been our breakfast 22 hours previously. By 1.15 a.m. we felt extremely comfortable, within our sleeping bags and upon our balsam twig mattresses, after an arduous and excellent day of 21 hours' going, comprising some new exploration, first class mountaineering and the traverse of the two highest peaks of the group.

The style and intention of our remaining days were cramped by persistent bad weather, and only small excursions could be made. On July 30, punctual to the appointed day, Pat Carey arrived from Fort St. James in the Junkers aircraft. Hall, Gibson and Wessel were flown to Fort Nelson to return south by the Alaska Highway; and later the same day the Smythes, Ross and myself were taken back to Fort St. James, for a final foregathering and some further climbing in the vicinity of Jasper and elsewhere during August and part of September.

Thus, we had been able, with some good fortune on our side, and in spite of pro-

tracted bad weather, to carry out a program of exploration of one of the few remaining areas of high mountains and glaciers awaiting primary investigation in the Canadian Rockies. The fact that this expedition was entirely airborne to its base was consequent upon the difficulties and remoteness of the region, the examination of which could never have been carried out in the time available, nor probably as economically, except by this means. During the past twenty years Canada has given a lead in matters of air transport in her remote northern lands, and the United States has been to the fore in the technique of air supply in the exploration of the great mountains of western Yukon and Alaska. The air arm in civil transport generally has proved of inestimable value, and in its particular application to the exploration of remote mountain terrain, where, as in Canada, nature has provided so many lakes as 'airfields', its advantages are such as to be overwhelming.



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The Palace Tomb in Petra, burial place of ancient kings. The building, wrought out of the rock of the hill, is three storeys high.

To Petra, City of Rock

by J. P. SHORT

TO THE SOLDIER serving in the Middle East come opportunities of travel and exploration that in other times fall only to the wealthy patrons of conducted foreign tours or the small band of freelance globe-wanderers. Often he finds himself encamped beside the monuments of civilizations of the past. The glory of old Egypt reveals itself in the pyramids, temples and tombs throughout the valley of the Nile. Ancient Greece and Rome have left their imprint throughout the Levant. The Arab civilization at its height has bequeathed a legacy in stone. Throughout the Middle East one stumbles across the mediaeval fastnesses of the Crusaders' castles. From Tehran to Khartoum, from Bagdad to Siwa are abundant relics of the great civilizations of the past. These memorials of antiquity, with their background of lore and tradition, reflect the knowledge and religions, the conquests and power, the pride and vainglory of man. Unique among them all for its remoteness and its shroud of mystery is Petra—the city of rock—in the western part of the Kingdom of Transjordan, not far from the Palestine border.

On the eastern side of the long rift-valley of the Jordan, the Dead Sea, the Wadi Araba and the Gulf of 'Aqaba, rises a steep wall of high mountains. This range connects with the Lebanon Mountains in the north and the broken ranges of the Hedjaz in the south. To the east fall away the tablelands of the Syrian and Arabian deserts. These mountains are of sandstone, their chipped, jagged edges and colourings reflecting many hues when caught in the setting sun. Access to the eastern desert tablelands is by way of a few mountain passes in the north and the Wadi Ytum Valley at the head of the Gulf of 'Aqaba in the south. In the bosom of these high

mountains, just east of the mid-point of the Wadi Araba, lies Petra. The only approach is from Ma'an lying to the east in the Syrian desert. Ma'an* is reached either by train from the north or by road from 'Aqaba in the south.

The history of Ma'an, at the junction of numerous caravan routes, is written in the many surrounding tiny forts which were built to protect its small settled population from the plunderings of the Bedouin of the desert. In its bazaars are displayed the wares of traders from afar, and it serves as the chief trading post for the secluded tribes of the Hedjaz to the south.

Leaving Ma'an, a motor road takes us west to the mountains. Soon we leave the shingle of the desert for rough scrub, which in turn gives place to grasslands as we mount through the hills. There is a briskness in the air and the greenery is a welcome relief from the sands we have left behind. We readily think of temperate lands among the green fields of the undulating terrain, but a chance meeting with a camel caravan soon brings us back to the presence of the unchanging East. Continuing through the hills we turn sharply into a longer, deeper, and more cultivated valley. This is the Wadi Musa. The motor journey ends at the head of the valley where lies the village called by the same name as the stream. Commanding the village and the approach to the valley is a high eminence of gaunt rocks—Ain Musa—the source of the stream. Tradition says that this is the high rock that Moses struck, and certainly the great patriarch's name is associated with many places in the neighbourhood. An Arab frontier outpost lies perched on the summit—the barracks of the local constabulary. The local tribes have a long history of conflicts with their neighbours and it is only very recently that

*Ma'an is the present southern terminus of the old "Pilgrims Railway". Beyond this outpost the railway track is disused. Pilgrims to Mecca now generally go by the Red Sea route via Jidda.



"El Siq"—the narrow gorge approach to Petra.
 Photograph by author

these descendants of highway caravan robbers have been brought under surveillance by organized authority.

The local garrison hurries to meet us, and if we have forgotten to warn them of our coming, much time will be taken up with formalities of signing books and paying the various fees exacted by the authorities who permit us to continue on our journey. Proportionate to our number, guides will be foisted upon us. They will not speak our language; they know little of the historical background of these parts, still they are to be our companions for the fees stipulated. Horses for our use would involve further delay and expense, but the better plan is to continue on foot. Having overcome the barriers, legitimate and otherwise, we proceed with blessings proportionate to the volume of largesse we have distributed.

A path winds down through the scattered village to the valley bed. The stream partly disappears underground, for here the rocks are mostly limestone. The eroded hillsides show many glittering brooks winding down their swift courses to feed the main stream.

The valley is well cultivated by the few stay-at-home Arabs, who generally hold the land on lease from the Bedouin tribes. The latter, despising a settled life, roam the Wadi Araba and other parts with their cattle for most of the year, and repair to their rich valleys only during the intense heat of high summer.

On either side of the valley are many old tombs built in the rock or standing alone in the fields; they reveal what must have been a great cult of the dead in times past. Suddenly the valley passage narrows and drops with a steeper incline. It turns abruptly to the left and becomes a great cleft in the overhanging rocks of red sandstone, for we are now in the main mountain range. Entering the gorge we feel we are penetrating a tunnel. The sides are more than 200 feet high and but a few yards apart. The path twists and turns in a perpetual twilight, for the rocks seem almost to meet overhead, closing out the sun's rays. The bed is covered with weathered smooth stones. High on the rocks to the left is a cut-out channel on the side of the cliff which in days gone by carried water from the Wadi Musa springs and wells to the inhabitants of Petra. This gorge continues for about a mile; it is called *El Siq*, or "the way". It joins another steep gorge, and at the junction is the first and the most imposing of the great monuments of Petra. Framed in the high mountain wall opposite us appears a building which looks like an old civic monument. We can scarcely convince ourselves that it has not been erected by man. Only when we approach and examine it more closely do we realize the truth—that it has been carved out of the sandstone rock in the mountain side.

This is the *Khazneh* or Treasury. Of all Petra's relics it is the best preserved, due to its situation, for it is protected in large measure from the prevailing winds and rain. The interior shows how deeply the rock has been cut away. There are large square rooms with walls and ceilings smoothly cut. The geometrical excellence of the design evokes a deep tribute to the craftsmen of

the remote past. The exterior is resplendent with portico, pillars and arches, all part of the hewn-out rock. High above the entrance is a statue surmounted by an urn deeply scarred by the many bullets that have been fired at it by those who sought to empty it of its treasure; for the story goes that much gold—the toll from travellers and booty collected from caravans—was stored therein of old.

From this junction of valleys the main gorge narrows and we pass by many tombs cut in the rock side until we come to the end of the ravine. Here there is a small amphitheatre which reveals itself as a later addition to ancient Petra, for around its sides are many rock tombs showing gaping interiors where they were cut away to allow for this theatre.

We come out into a large open space about one mile square. On all sides are towering mountains separated by many steep valleys and gorges. Everywhere there are rock-hewn tombs and temples, palaces and dwellings great and small. Along the main stream bed is the paved road of the ancient highway. Rock steps take us up side valleys to "streets" of houses in the mountain. We are impressed by the beauty of the natural setting and the artistry of the

city's stone-cutters who have left mighty monuments and humble dwellings, all in rock, and nowhere is the sense of proportion lost in the towering mountains overhanging all. The growth of the city can be read in the few marked differences of design. As all the mountains are of soft red sandstone rock, there was little scope for exterior ornament, but the more ancient relics show a developed style of pinnacle distinct from the more familiar Greek and Roman façades. Every palace or dwelling, temple or tomb that we enter displays the same interior symmetry of design, whilst the smoothness of the walls and the square-cut enclosures reveal the skill of the city's craftsmen.

We notice many cisterns built to collect water from the winter rains. Although the supply brought by the rock-cut channels from the Wadi Musa springs must have been plentiful, yet in times of siege much of this supply might easily have been cut off. Then, too, the care in providing artificial reservoirs must have been dictated by the growth and luxury of the city as shown by the ruins of the public baths.

Of the precise history of Petra little is known. It is probable that it arose on the

Rock tombs hewn out of the sandstone

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The old city and the new. In the foreground is the crumbling rock city of Petra; behind the Roman pillars is the modern town of Jerash.



natural site of an early storage place and hide-out of some Arab tribe. The city prospered and became the capital of the Nabataeans, who in trade and civil life were influenced by the Greeks. It was conquered by the Romans, who embellished the city. Later Christianity penetrated to Petra. There is a quarter of the city where the temples are marked with Christian emblems, and the tombs with crosses. There

Tombs elaborately carved in the rock.

Photograph by the author

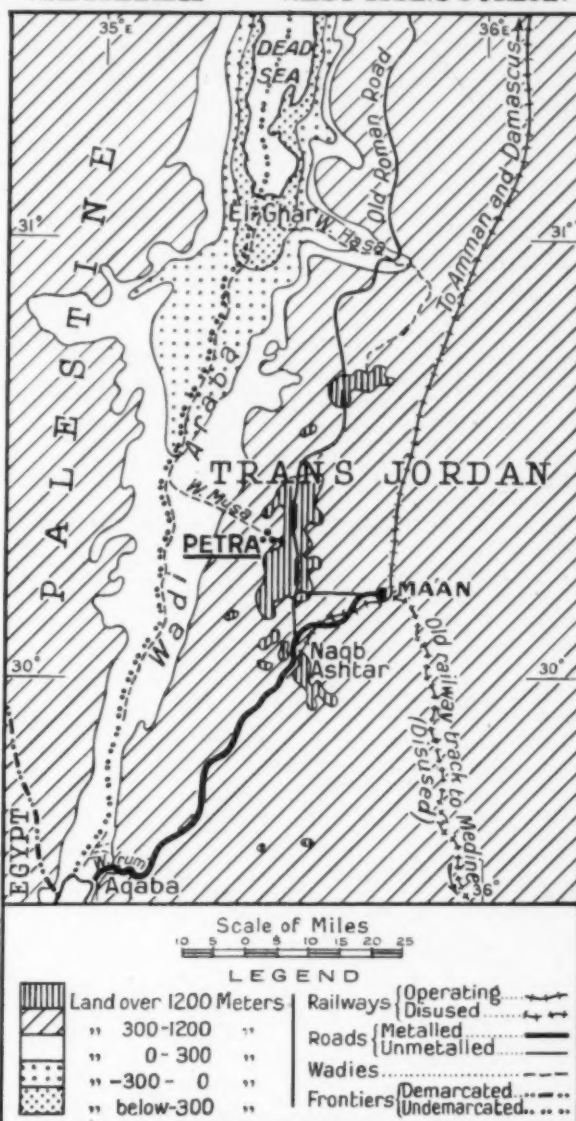
are the ruins of a Crusaders' fortress. With the departure of the Crusaders the city sank into oblivion. Other trade routes were developed and few people seem to have travelled this way. With the lapse of time Petra, which was once one of the wonders of the world, became but a traveller's tale: "A rose-red city half as old as time". It was only in the early nineteenth century that the explorer Burchardt rediscovered its site and wrote of its glory that outlived its decay.

If we climb to one of the mountain summits, to the "high places" of ancient sacrificial rites, we are rewarded with a wonderfully impressive view. To the west the deep valley of the Wadi Araba falls away precipitously, and beyond are the mountains of Sinai and the Holy Land. On all other sides are the peaks of the high mountain range, with the shimmer of the desert tableland in the east. The sun's rays catch the redness of the rocks which seem all aglow. Petra lies below in its secluded valleys, hemmed in on all sides by the mountains. All is silent as the grave, and fittingly so, for the gradual decay of time robs the rock city of its former splendour, and it sleeps with the memories of a proud dead past.

Bottom left:—The main street of Ma'an, east of Petra, in the Syrian desert. Photograph by the author

Bottom right:—Disused railway track in the desert south of the Ma'an.

WADI ARABA — WEST TRANS JORDAN





The driver perches above the broad treads of the tractor which rumbles across ice and snow.

Tractor Trails in Manitoba

by LYN HARRINGTON

Photographs by
RICHARD HARRINGTON

ALTHOUGH they are not shown on any maps of the province, thousands of miles of roads extend through the hinterlands of Manitoba. From the slender line of steel streaking north to Hudson Bay, these trails unravel through the forests, over the muskeg, across the frozen lakes. They are the winter roads of the tractor freighting companies.

Tractor freighting is the modern method of supplying pulpwood-cutting, mining and fishing camps. The loaded sleighs, drawn by powerful caterpillar tractors, haul in equipment and machinery, supplies and manpower to these camps. On the return trip, they carry bales of furs, mining concentrates, frozen fish or towering loads of pulpwood.

Remote trading posts depend upon the tractor trains for their supplies of food and clothing, hunting equipment, tents, pails and every commodity of life for both Indian trapper and white resident. Missions and Indian Agencies are served by the "cat-swings" that crawl over the snows and fields of ice.

Freighting by caterpillar tractor, with a swing of loaded sleighs, is an expensive form of transportation. It is, however, less costly

than freighting by horses, as was done formerly. Though slower, it is considerably cheaper than freighting by aeroplane; the latter must be used for very remote posts, or when spring break-up comes so early as to make the lakes unsafe for the heavy cat-swings.

One tractor freighting outfit has a regular schedule of operations across Lake Winnipeg, bringing out fresh fish in heated cabooses, or frozen fish on sleighs. These swings keep in contact with their head office by radio-phone. From The Pas, tractor swings cut west to Cumberland Lake, and east to Lake Winnipeg.

Wabowden, division point on the Hudson Bay Railway, garners the cut pulpwood by tractor train. Ilford, farther up the line, is a major tractor freighting depot. From there four outfits cross the roadless countryside to trading posts and mining camps, ranging as far as northern Ontario. On occasion tractors are freighted on flat-cars north to Churchill to haul supplies in to remote Caribou Lake on the borders of the Northwest Territories.

Top left:—The man in front, clearing the trail with a snowplough, has a dangerous job. He must watch for air-holes and cracks in the ice.

Bottom left:—The size of the swing depends upon the hauling power of the machine. This tractor hauls two loaded sleighs and the caboose.





Tractor freighting yard at Ilford. The swings are being arranged in their proper sequence as the sleighs are loaded.

The crews of the tractor trains are a medley of nationalities; shown here are Anglo-Saxon, Dutch, Belgian, Ukrainian and Indian.



Tractor freighting is no easy life. It is hard, cold work and not without danger. There is the risk of plunging through thin ice with the heavy tractor, or through the sinking muskeg if the road must be routed around a lake with poor ice. Air-holes and cracks in the ice are further hazards. A plunge through broken ice can happen in seconds, with little chance of escape for the driver. Often the tractor route looks like a dark snake spread across the white snow-fields, as the trail curves around dangerous areas.

Most of the tractor freighting outfits work on a twenty-four-hour schedule, if the going is fair. The two crews go on eight-hour shifts, working and sleeping alternately. But the tractor swing halts overnight on a portage, if the lake ahead is known to be full of slush-holes or air-holes. All night long the engines throb, as they do from the beginning of freighting operations in December to the end, about the middle of April.

At the first sign of daybreak, the tractors rumble up on their broad treads to the oil sleigh, refuel, and hook on to their loads once more. The tractor train is again on its way. The loads are carefully spaced on the ice, but keep fairly close together on solid land.

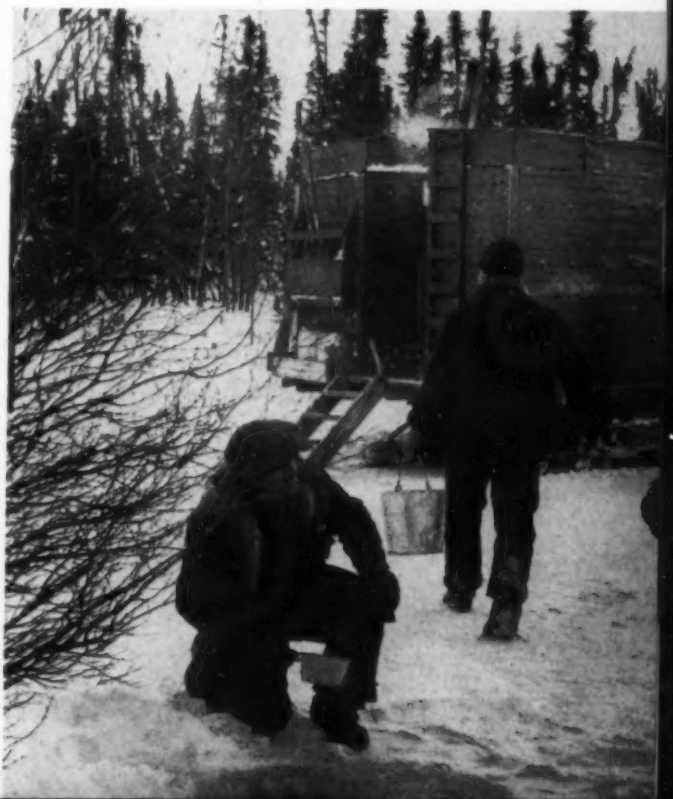
The swing may be composed of any number of tractors, each pulling a group of three to five sleighs, depending upon the hauling capacity of the machine. About the middle of the tractor train is located the cook-caboose, which is very often the sleep-caboose as well. Here the men spend their time when not on duty. Many of the cabooses are "muzzle-loaders"—the bunks arranged like a honey-comb and entered from the end. The rest of the caboose is the kitchen.

The meals are apt to fall far short of lumber-camp standards, for few good cooks will tolerate the lurching of the tractor swing. The cook-caboose pitches down into every hole in the road or ice, takes acute angles, all of which makes getting meals a hazardous affair. Nor is there much space in the caboose for working or for supplies, and meals become very monotonous.



The cook caboose which in this case (not the general rule) houses a woman cook. The meat is frozen solid and kept in a cold cupboard reached by the ladder. The roast takes a day to thaw out.

Holes are cut through the ice over the lakes, and reopened by passing swings, to provide water for the tanks in the cook caboose and the sleep caboose. The water is drinkable in most of the lakes.





The snowy trails wind across land and lake in the roadless countryside and through the winter wonderland of the hushed forests—but to the crew it is all just a job of cold, hard work.

'Double-heading' the swing up a steep grade where one machine cannot haul the load. The trees are the victims of forest fire.





wonder-

s are the

The robot eyes of the tractors seem to seek their own way along the trail. Lights are always kept on so that the swing boss can readily see that the caravan of the snows is keeping pace.

Similarly in lowering a swing down hill a second tractor hooks on to the group, this time at the back to restrain momentum.





Bags of vitamin enriched flour being shifted from one sleigh to another

In the summer, there is merely a narrow curving gap in the forest to indicate the winter roads, stopping short at the water's edge. But in winter, when the lakes freeze over, a small "breaking-crew" goes out over the trail by dog-team. The men shovel the snow off the edges of the lakes where the road enters, so that the ice may freeze to a satisfactory depth. They test the thickness of the ice, corduroy steep pitches in the road, or on to the ice of a lake. This is done to save breaking equipment later on, not for the sake of comfort.

When freighting is about to begin, early in December, another crew goes over the route with a heavy drag, to pack the snow

down to a firm surface. They plough a road across the lakes, in the hope that the ice will freeze hard and thick before the snow blows back into the ploughed track.

Increased use of the road builds it into a solid high-road. On large lakes the tractor swings can follow one another without difficulty, for the ice has become hard and firm. On small lakes where the snow acts as insulation, preventing the cold from penetrating the ice, it may be necessary to plough out a new road for each oncoming tractor and its sleighs. Muskeg lakes, with their brackish water, do not form good blue ice.

It may be necessary to break out a new road by bulldozer around a muskeg lake, if

the ice seems very slushy. Travelling over muskeg is not without danger. Several loads may pass over a muskeg road with safety, the ground rising and falling with each passing load. But later machines or loads may be dragged down. If a machine goes through the muskeg, it is irretrievably lost. It cannot be salvaged by hoist and winch, as can the machine which plunges through the ice in relatively shallow water.

When it comes to hauling the heavily loaded sleighs uphill, frequently a second tractor unhooks from its load, and hooks on at the head of the swing. Together the two machines pull the heavy swing up the slope.

Again, going downhill, two tractors are necessary. The second tractor hitches on at the rear of the swing, to restrain the momentum. Otherwise, the grade might be such that the end sleighs would "jack-knife" into those ahead, break the coupling-gear and probably crash off the road.

When two swings meet on a lake, they keep widely spaced, though usually a social call is paid between the swing-bosses. On a portage, the more lightly loaded outfit gives way to the heavy load. Co-operation is the golden rule of the road, and tractors are unhitched to help break out a path for the other swing. Other courtesies of the road are lending equipment or barrels of fuel oil, carrying messages back to headquarters, or on to some destination.

News of the road is vital too. A warning regarding ice-cracks is not lightly disregarded. Sometimes at the edge of a lake or part way across, two trees may be set up, crossed. That is a signal from some previous outfit that the trail is no longer good, or that the ice is not safe. No driver or shift-boss would think of neglecting such warning. There are enough accidents on the winter trails without asking for trouble.

Supplies of fuel oil are cached at various places along the route. Sometimes it is necessary to shift the load after part of the original load has been delivered. Here a load is being shifted on an open stretch of twelve-mile-wide God's Lake.







"Their piping and their marching is a credit to the clan."

Nova Scotia's Highland Cape Breton

Photographs by courtesy of
The Nova Scotia Bureau of Information

by WILL R. BIRD

CAPE BRETON's historic and old-world associations provide an endless interest and variety of entertainment for the cultured and enquiring mind. Cape Breton's scenic beauty has stirred the hearts and tongues of visitors to eloquent expression, has attracted artists from all over America. Cape Breton's natural recreational facilities were a main

consideration in the establishment of Cape Breton Highlands National Park.

A French writer of the seventeenth century spent some time in Cape Breton. On his return to France he wrote: "Cape Breton is a very beautiful land on the coast of Acadia, where there are plains and prairies, valleys and hills and lakes and rivers, vast forests

Opposite:—Daisies enhance the scenic beauty of Cape Breton

filled with oak, maple, cedar, and the finest fir trees in the world." Writers of today relate that Cape Breton is a part of Nova Scotia possessing dramatic beauty, distinct in character and different in tradition.

Cape Breton, 110 miles long by 87 miles wide, forms the northeastern part of Nova Scotia, and its citizens claim they live "down where the east begins". It is one of the oldest known parts of the North American continent, undoubtedly frequented by Norwegian rovers as early as the tenth century. Flemish geographers say that Cape Breton was discovered and named by Basque fishermen who crossed the Atlantic a hundred years before the voyages of Columbus. At any rate, Cape Breton is generally considered to be the oldest name in North American geography.

The highland to the north was the landfall of John Cabot, the first sighting of North America of which we have record. Standing far out in the Atlantic, Cape Breton owes much of her colourful history to her geographical position. Nearer Europe by hundreds of miles than any other American centre, Cape Breton two centuries ago was an issue in world politics, and the fortunes of the island, now under the Red Cross of St. George, now under the Golden Lilies of France, are a part of the continent's history—the greater part of it a war history.

The story of Louisburg, a fortress twenty-five years in the building, at a cost of twenty-four millions, its two sieges, and its final demolition, is the best-known chapter of Cape Breton's history. The fortress became not only the base of French naval power in America, but, with outlying posts at St. Peters, Ingonish and St. Ann, the resort of privateers that infested the New England coast.

In the annals of the New World there is no story more romantic than that of Louisburg, ramparted and bastioned and bristling with cannon, sheltering thousands, with its imposing public buildings, its cathedral, convent, and hospital, its theatre and even its brewery, springing up on the shores of this almost unexplored island. The tale of its two sieges is an epic in Canadian history. All Britain celebrated its final fall, and the captured colours of Louisburg were deposited with much pomp in St. Paul's Cathedral.

Grants of land to settlers were not permitted until 1784, when the island became temporarily a separate colony, so that few Loyalists settled there, and there was plenty of room for the great influx of hardy Scottish settlers who came at the opening of the nineteenth century. Soon Cape Breton became as Gaelic as the most Gaelic part of Scotland. Acadians drifted there from the mainland, and there are many strictly Acadian communities today, where French is spoken and Acadian characteristics persist.

Cape Breton, however, is still predominantly Highland Scottish in its population. Here can be heard the old Celtic tongue that has sounded the slogan of the Highland clans on every battlefield of the Empire; "a speech that fits the Highlander's mouth to a nicety, that becomes him like his kilt and bonnet; a

Left:—Masonry once meant might—at Louisburg.

Right, top:—Sunrise Valley at the northern stretch of the Cabot Trail.

Right, bottom:—Ingonish, the mountains, and the sea.

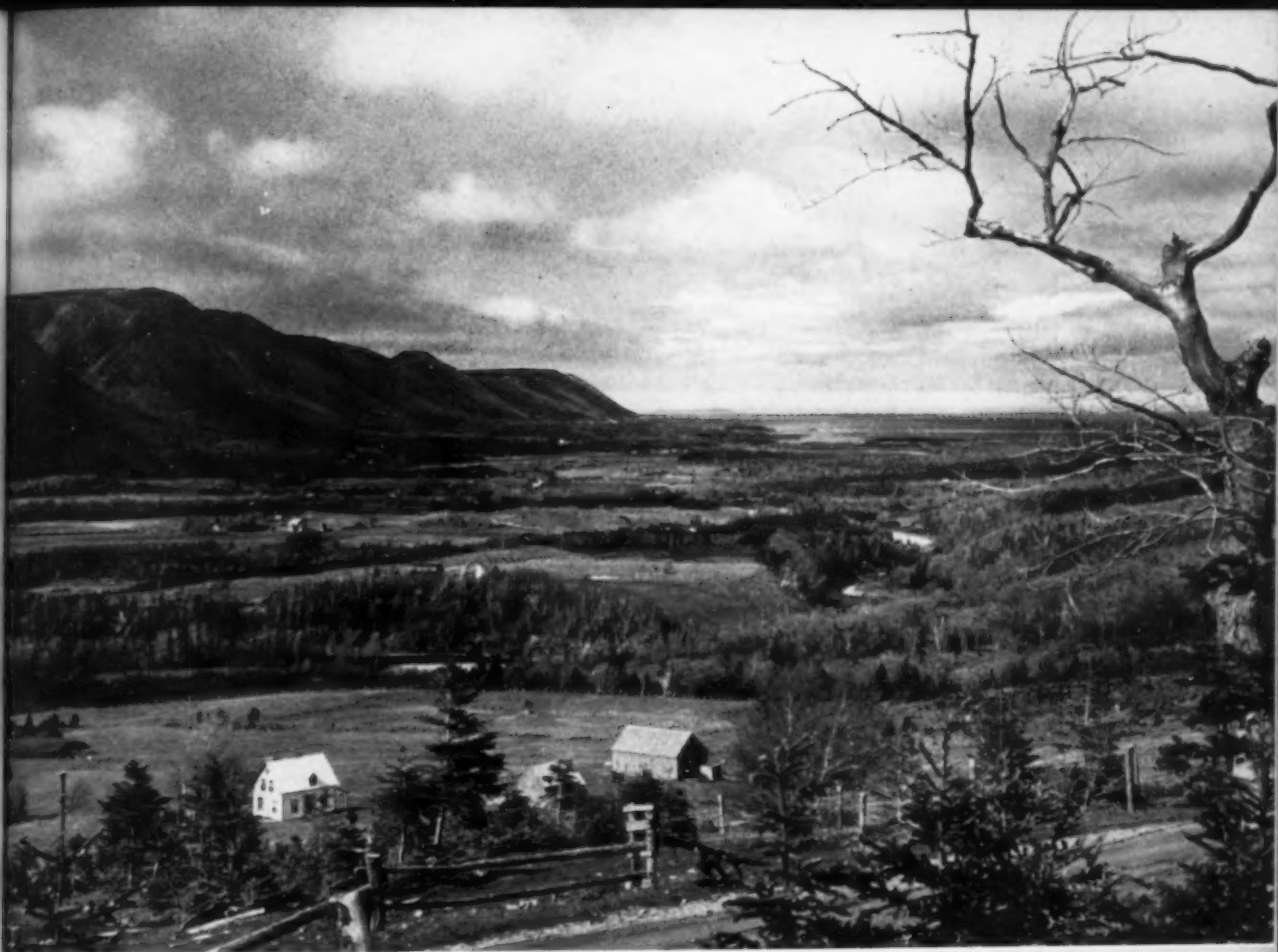


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speech adapted to a fine long grace before meals or to a lusty war cry that startles the very eagles in their eyries."

At St. Ann today there is the only Gaelic College in America, and there during the latter part of July is held the annual Gaelic Mod and Highland Gathering, one of the most unusual and colourful public events in eastern America. Competition in Highland dancing, piping, Gaelic singing and Highland sports fill a four-day program, and the setting of Mod is one of the scenic spots of beautiful St. Ann Bay.

Not far away, on the shore of the Bay, is Englishtown, famed as the home of the Cape Breton giant, Angus McAskill, who stood seven feet and nine inches in height and weighed 425 pounds. Legends of his feats of strength still linger in the locality, and his grave in the village cemetery has been visited by thousands. Nearby is a cairn of field stone bearing the following inscription: "Sainte Ann. Settled 1629, by Captain Charles Daniel, and site of an early Jesuit Mission. Selected, 1713, as a naval base and one of the principal places in Ile Royale, named Port Dauphin and strongly fortified. Its importance declined with the choice, 1719, of Louisbourg as the capital."

A link with history is St. Peters, where the old canal follows the portage of French trading days, and a cairn bears terse record of history made there in the long ago. The inscription reads: "Site of Denys' port and trading post, built 1650. Selected in 1713 as one of the three principal ports in Ile Royale, named Port Toulouse, and fortified by works at Point Jerome. Destroyed by Pepperell's troops, 1745, re-occupied by the French, 1748, evacuated 1758." Other historic spots are Port Morien, where the first regular coal mining operations in America began, and Arichat, site of the first regular trading operations.

Cape Breton is truly a beautiful island. There are charming vistas of lake and valley and hills. There are spectacular age-old rock ramparts that forever battle the tides. There are ever-changing panoramas of sea and intervale and height of land. There are the scenic splendours of the Cabot Trail, and the sheer loveliness of Ingonish. There is Isle Madame, beloved by artists and still holding the magic of yesterday. There are the world-famed, green-framed silvery mirrors known as the Bras d'Or Lakes. There is picturesque Cape Breton Highlands National Park, offering views that are the experience of a life time.

The northern part of Cape Breton is the climax to Nova Scotia's scenic pageant. The hills rise as if the end of one of the mainland mountain systems were thrust up defiantly before plunging into ocean depths. The varying contours possess a grandeur and ruggedness that fascinate the artist. Here and there the hill tops seem to press closely together. The coastal land falls sharply to the surf.

Visitors who like lake travel can spend two delightful days in steamers that go three times a week from Sydney, cruising the salty Bras d'Or. The lakes are nearly seventy miles long and from ten to twenty miles wide. Along the shore wooded headlands and little villages are reflected in the water, and the cruise is like a voyage in fairyland, the sparkling but tranquil sea set amidst

Left, top:—Margaree Harbour, where the Margaree salmon come in from the sea.

Left, bottom:—Whycocomagh, "Head of the Waters"

Right:—Every turn is a scenic surprise when you drive the Cabot Trail.





Canada's Governor-General finds relaxation amid the beautiful surroundings of Keltic Lodge.

hills, near and remote. As the steamer keeps its even course the hills seem to approach and fall away in lines of undulating grace, draped with a tender colour that fires the imagination. Small wonder the French named the waters "Arm of Gold."

Alexander Graham Bell, inventor of the telephone, was a visitor who so loved Cape Breton that he made his summer home there, across the water from Baddeck on Beinn Bhreagh ("beautiful hill"). There he carried on his interest in flying, an interest that bore fruit for at Baddeck the present lieutenant-governor of Nova Scotia, J. A. D. McCurdy, made the first flight in the first flying machine to be built within the British Empire. A cairn in the town square commemorates the event. Dr. Bell wrote: "I have travelled around the globe. I have seen the Canadian and American Rockies, the Andes, the Alps and the Highlands of Scotland, but for simple beauty Cape Breton outrivals them all."

There are those who consider the view from Beinn Bhreagh the most beautiful in Cape Breton. The evergreen hills spread left and right, and the bright expanse of lake between the hill and Baddeck seems to catch every detail of tree and colour. White-winged craft sail about like graceful swans. Baddeck itself looks a toy village in a setting of rare beauty. Beyond it the hills rise in gradual sequence.

No two persons agree as to which area of the island is most beautiful. Artists often favour lovely elm-dotted Margaree Valley. Others prefer the impressive beauty of Sunrise Valley. A third will stoutly maintain that the finest scenery in the Maritimes is to be found through the Bras d'Or region of the interior. Generally, however, the majority will agree that the Cabot Trail provides all the scenic beauty that the most exacting may expect.

Most striking of the island's physical features, perhaps, is the inland sea, known in

its two sections as the Great and Little Bras d'Or Lakes. Widening out from its two Atlantic entrances, it extends in its 450 square miles of area through the heart of the island—nearly a thousand miles of interior coastline bordering all four counties and forming in enchanting succession wide harbours, island-dotted bays, and fiord-like channels. Though salt water, the tidal rise and fall of the lakes is no more than nine inches, and one of the finest yachting courses in the world is provided.

As well as this beautiful inland sea, there are fresh-water lakes—the largest, Lake Ainslie, with a length of twelve miles; Loch Lomond, as picturesque as its name, and the Lake o' Law, headwaters of the Margaree River. For loveliness these lake districts rival the Bras d'Or. There are graceful wooded hills, rich upland pastures, and stretches of fertile intervale between.

The Cabot Trail is a loop of 185 miles, beginning at Baddeck, and no visitor should make the circuit in less than three days. Making a clockwise circuit of the Trail is

advised, in order to keep on the inside track. The Trail is interesting from the start. It winds through the Margaree Valley, passing close by fine salmon pools, reaches the western coast at Margaree Harbour, then turns northward, leading directly through the Acadian villages of Grand Etang and Cheticamp. This is the Acadia of Inverness County. The inhabitants speak French and possess all the outstanding traits and natural culture of their Norman ancestors.

Cheticamp, the largest Acadian community on the island, is like a number of the Acadian or Scottish villages. Their people, durable as the hills that shelter their little homes, have for generations won their subsistence from the sea, yet have retained a rare skill in handicrafts. Sheep thrive in Cape Breton, and the native wool, spun on ancient wheels, is woven into honest material that never wants for a market. They know, too, the art of using dyes and their hooked rugs have earned a fine reputation. All around the island are fisher settlements that attract

Boating in the peaceful charm of Baddeck





The pipers play and the tartans sway, it's a gay Cape Breton day.

visitors wishing to make camera studies, and there is an atmosphere about these little places not found elsewhere. The stranger feels that here are a people who have pride in their toil and the simple faith of a past century.

The Cape Breton hills are the highest in the Maritimes and the western side of the island is noted for its variety of scenery, the coastline being rugged and spectacular. There are wild hilly regions with great grey parapets fronting the sea, then sudden gorges, bays and inlets, rippling slopes of tree tops, age-old rocks that mock the vagaries of man, and small pastoral valleys watered by noisy rivulets.

Along the Trail from Cheticamp to Pleasant Bay one striking scene succeeds another. The roadway leads along the base of Cap Rouge, rising hundreds of feet above, then winds along hillsides, going up and up until it reaches the height of land. The original trail can still be seen, narrow and risky, like a wispy goat's path, going up the bald front of the mountain. The present Trail, however, is perfectly safe in all respects, and there are few places where it is necessary to change gears when driving. A lookout on

MacKenzie Mountain provides a grand view of the sea far below, with soaring gulls adding to the picture. At evening the lucky ones who take advantage of this lookout are often rewarded with the sight of fishing boats beating homeward, their coloured sails slanting long reflections in the water.

At Pleasant Bay the Cabot Trail cuts away from the sea towards the eastern side of the island, following a brook for a distance, almost roofed overhead with a canopy of foliage. Ruffed grouse whirr upward from the roadside, while a doe and her fawn may appear at any point. The stillness is impressive, the small chattering of the brook seeming to be the only sound. On the right is a picnic spot, one of several maintained by the National Parks Service, and the majority of visitors stop to inspect The Lone Shieling with its thatched roof and stone walls, a replica of a crofter's cot in the Scottish Highlands.

The Trail twists uphill, climbing North Mountain to a height of 1,500 feet, offering unusual views overlooking a sea of tree tops, panoramas of stream and hill and forest and sky. Then the road leads downward, and stone walls rim stretches that drop away

steeply below. After the descent the Trail enters Sunrise Valley, offering one of the most beautiful landscapes in Cape Breton, lush farming country opening out into vistas of hazy hills and the blue reaches of Aspy Bay.

From Cape North a very passable motor trail leads to Bay St. Lawrence, a little fishing centre. Sugar Loaf Mountain in this area is said to be the point of land Cabot first sighted, but the inhabitants care little about it. Their interest is in the run of fish or lobsters, and their homes straggle down towards the sea over hillsides barren of trees. This is one of the spots in Cape Breton where flocks of sea pigeons (guillemots) nest in the crannies of the weathered cliffs.

Dingwall and Neil Harbour are typical Cape Breton villages and meeting their people will repay the visitor for stopping. Neil Harbour is a dent in the rugged shore

line, the scenery reminiscent of Newfoundland. Jagged rocks receive the onslaught of the sea and there is ever the drumming of surf, and flying spray. The anchored boats swing restlessly and the land is bare of trees or gardens, yet there is something about the Harbour that intrigues photographers.

From Neil Harbour the Trail turns southward and inland, passing through forest and barrens. There are some trout streams to invite the angler, and here and there on the barrens can be seen the reindeer moss that made Cape Breton a great caribou country more than a century ago. In time to come park officials will open up the great interior of their region, largely a plateau of moss and muskeg, ponds and barren ranges, known only to lynx and fox and otter, mink and marten.

At North Ingonish the Trail touches the sea again. Ingonish, famed for its scenery,

The Lone Shielling, maintained by the park service as a picnic area.





was a thriving French village in the eighteenth century. A long, rocky promontory, Middle Head, splits the waters of Ingonish into two bays. A sand bar partially closes off South Bay. Ingonish Harbour itself is a deep fiord affording a sanctuary from the storms of the Atlantic. From North Ingonish Middle Head appears low in comparison with bold Cape Smoky, looming more than a thousand feet above the sea. Cape Smoky has massiveness and grandeur. Its headland towers high and often halfway up is split by a fleecy cloud bank which gives the headland its name.

Middle Head is journey's end for the discriminating traveller. It is a source of great delight to those who have happened that way by chance. The scenery is magnificent. Each year artists try to catch the changing lights on the great surf-drenched rocks, on the harbour and on Cape Smoky. Keltic Lodge, offering the best in de luxe accommodation, is situated picturesquely on the narrow neck of the "Head". The bathing beach is near, and other facilities provided by the National Parks include tennis courts and one of the finest golf courses in Canada.

From Ingonish to Baddeck the residents along the Trail are almost exclusively of Highland descent. A choice of roads must be made just after Indian Brook. One can cross the ferry at Jersey Cove, or drive to Baddeck by way of North River and St. Ann, a district that is a little Scotland with Scottish settlements and glorious wooded glens. Bluefin tuna swarm in the waters of St. Ann Bay, and first tuna angling records were established there in 1909 by Commander J. K. L. Ross.

There are so many beauty spots in Cape Breton that it is impossible to list them all. There are places of great interest, too, such as Glace Bay, New Waterford, Dominion and Sydney Mines, where men go down to dig coal in shafts and tunnels that run out underneath the ocean for over two miles, the greatest under-sea coal mining operations in the world. And the city of Sydney itself,

with its fine harbour, is the "Pittsburg" of Canada. Yet above ground one has to go but a short drive from these places to find beauty unexcelled. Louisburg and Glace Bay are noted swordfishing centres, and American and North Atlantic records for broadbill swordfish taken by rod and line were established in Cape Breton waters by Michael Lerner, the famous sportsman.

Out of Sydney is Mira River, a short stream with ideal surroundings, bordered by summer cottages. Other interesting drives lead from Baddeck and Port Hawkesbury. From Baddeck one can go to the mainland ferry by way of Malagawatch, Marble Mountain, West Bay and Cleveland, a winding road, deer-haunted in the summer, that skirts the lake revealing some of the most glorious views in Cape Breton.

Highway 19 extends up the western coast from Port Hastings, touching Port Hood and its fine beach, lovely Mabou, Judique, the cradle of the first Highland Scots in western Cape Breton, and Inverness. This district, too, is settled largely by Scottish Highlanders.

Highway 4 runs from Port Hawkesbury to Sydney and Glace Bay. There are many side roads from it that well repay the visitor who goes exploring. The best, perhaps, leads from Grand Anse to Isle Madame, reached by a bridge, a land apart which gives the visitor a new perspective of the beauties of Cape Breton. Here is a bit of old Acadia. Until the last decade or so the girls could be seen wearing dainty Norman kirtles, the older women black coifs twisted around their heads. Arichat, the shire town, is very old, with an individuality and charm all its own and a strong appeal to artists and photographers.

Highway 5 runs from Port Hawkesbury to Sydney via Whycocomagh and Baddeck. The name Whycocomagh puzzles visitors but it is Micmac Indian for "head of the waters," and the little village itself is the terminal for enchanting cruises down the Lakes from Sydney, a trip no one should

Top:—Trim swordfishing ships lie at rest in a corner of Ingonish Bay.

Bottom:—Lovely Margaree Valley offers peace and beauty, and fine salmon pools.

miss. Charles Dudley Warner called Whycomagh "the Naples of America." It is a cosy, quiet little place, snugly nestling under Salt Mountain and embraced on the other side by a companion range of hills—a bonnie spot, detached from the outside world. A sunset over the village and the lake water is something that lingers in the memory.

Go where you will in Cape Breton, and you'll not repent your going. There is not a road or settlement or district that will disappoint a visitor. It's a land of square dances and Gaelic songs, of milling frolics, rug-making, misty glens, Acadian cheerfulness, the realm of the bagpipes, of giants, shipwrecks, swordfishing, old forts and weird fireside tales. Every nook and corner has its beauty whether it rests in magnificent water-scapes, lovely wooded stretches, hillsides of intense, harmonious colour, green land arms reaching into lake waters of turquoise blue, high, jutting peninsulas, maple and birch over-arching woodland roads, curving highway lifting by spirals to broad plateau or in little villages planted daringly beside stark bare rock.

Baddeck, the glorious Bras d'Or, Ingonish, the Cabot Trail, are words the visitor will be

reciting to his friends when he goes back home. Their highlights will be dominant in his dreams. He will remember, too, the rugged casemates and old parade ground at Louisburg, where there are no trees with rustling leaves and the sea wind whispers in the tall grass. He will think of Framboise, and the sight of hundreds of seals gamboling in the waters beyond a superb three-mile beach of hard sand. If he has been especially fortunate he will have memories of a sunset at River Bourgeois where the golden light picks out the small white houses, making them appear like spectators around the slim mile-long harbour. And he will not forget an evening at Briton Cove, spent with kindly hospitable Highland folk at the Inn, where they still speak the soft singing Gaelic and swing their ladies to The Flowers of Edinburgh.

Cape Breton is the Old World in the New. Old Scotland is there, and Old France, too. Lovely lochs and glens and spell-casting natural beauty has been spread with lavish gestures. Sea-bitten shores strewn with lobster pots and drying nets add salty interest to the scene. Small wonder that the average visitor leaves reluctantly, vowing to return.

Below:—A land apart—Acadian Isle Madame

Right:—A weaver operates a Cape Breton loom

Opposite page:—The mirror of Loch O'Law set amidst wooded hills.



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Sign of Ye Jolly Gardeners Inn near Denham, Bucks.

Inn Signs of England

by W. H. OWENS

Photographs by P. H. Lovell

EVEN THE hurried traveller through England could hardly fail to notice the gaily-painted signs of her town and village inns. Everywhere they display the greatest variety in subject and design, many of them telling an interesting or amusing story. These signs, in fact, symbolize the life of England throughout the centuries and reflect the spirit and achievements of every age; they portray historical events, royal and ducal emblems, heroes, saints, traditional sports, trades, crafts and old legends.

Inn signs, an early form of advertising, are a survival from the days when few people could understand the printed word. The streets of London and other old towns were once decorated with a medley of pictorial signs which traders hung over their doorways to attract customers. Most of these have long since vanished, although in some places the barber's striped pole and the pawnbroker's three brass balls are still to be seen.

The inn sign, on the contrary, seems to have become more popular than ever in recent times. During the last twenty years or so, hundreds of new or repainted ones have appeared all over England, and many of them have been executed by well-known artists or fashioned in wood or iron by skilled craftsmen. They have brought back colour and individualism to town and country.

As long ago as the twelfth century English innkeepers used to display a long pole outside their premises to indicate the nature of their trade. This became compulsory in the reign of Henry III when a law decreed that whosoever shall brew ale with the intention of selling it must hang out a sign, otherwise he shall forfeit his ale. Where wine, as well as ale, was sold the landlord attached the vintners' sign, a bush of ivy, to his pole. Hence the origin of the ancient saying, "Good wine needs no bush".

The steady increase in the number of inns led to individuality among their signs.

In the early days it was the custom to use the emblem of the reigning king or the arms of a nobleman, and these signs are still among the most common in England. The "White Hart" was the badge of Richard II, the "Red Lion" that of John of Gaunt, the "Feathers" that of the Black Prince, the "Rose" that of the Tudor kings, and so on. The famous Earls of Warwick are commemorated with their emblem of the "Bear and Ragged Staff", while the familiar "Blue Boar" recalls the De Vere family, Earls of Oxford for centuries.

During the Middle Ages, when the trade guilds flourished, innkeepers adopted the various guild signs; this was done to attract members of the respective guilds, who usually chose an inn as their headquarters. So in the towns you frequently see the "Wheatsheaf", representing the bakers, the "Three Tuns" of the brewers, the "Three Compasses" of the carpenters and, in seaports, the "Dolphin" of the watermen.

Village inn signs depict rural occupations in simpler form such as the "Jolly Waggoners", the "Farmer's Boy" or the "Load of Hay". The sign of the "Green Man" may signify that an inn was once kept by a gamekeeper or was the meeting place of local poachers.

Very often the date of a wayside inn may be guessed from its name or sign, although in some cases this may have been changed to honour a national hero or commemorate a military victory. There is a "Lord Nelson" and a "Duke of Wellington" in nearly every town. Rather less obvious are signs like the "Lamb and Flag", the "Trip to Jerusalem" and the "Saracen's Head", all of which were adopted at the time of the Crusades. The Saracen usually appears as a handsome, black-faced warrior, although in some signs his head is fixed to a spear held aloft by a Crusader on horseback.

A very common inn sign with a romantic origin is the "Royal Oak" which commemorates the escape of Charles II, who took refuge in the hollow trunk of an oak tree after the fateful Battle of Worcester.

Whimsical artists have sometimes shown the unhappy monarch with his head ringed by the foliage of the tree. The ever-recurring "King's Arms" would be applicable to any reign, although one of the oldest of such signs at Shrewsbury shows the head of Henry VII.

The golden age of the English inn—and its sign—was when the stage-coaches ruled the highways. During the eighteenth century innkeepers often spent considerable sums on elaborate and arresting signs in order to win custom; indeed, some of the subjects chosen were so unusual that travellers would stop just to look at them and invariably take refreshment before going on. Not content with the ordinary hanging sign, some landlords had them erected right across the roadway; several of these remarkable "gallows" signs exist to-day, notably that of the "Fox and Hounds" near Royston, on the Great North Road. It depicts two red-coated huntsmen on horseback following a pack of hounds in full cry.



The Henry the Eighth at Hever, near Seven-oaks, Kent.



Possibly one of the finest examples of modern sign design is that of the Roundabout in Woodford, Essex. It faithfully portrays a merry-go-round with its bird and animal mounts—even to the piebald horse.

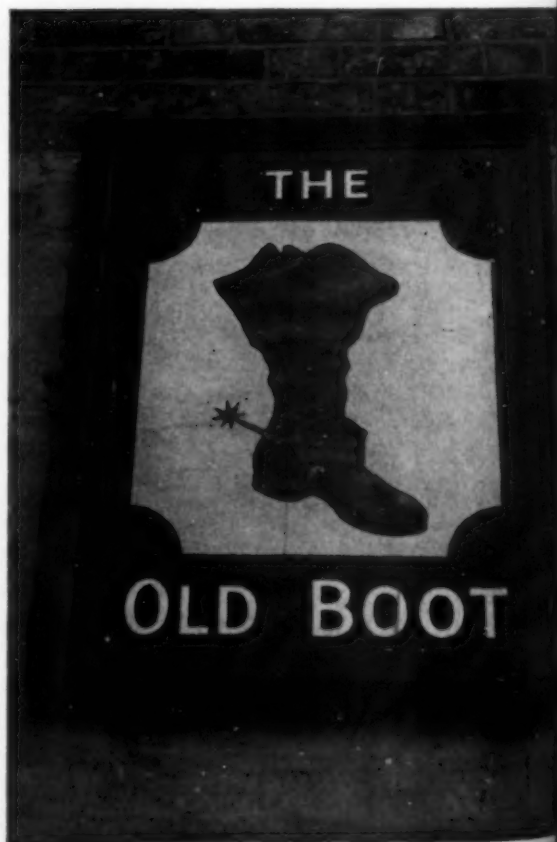
A Trusty Servant's portrait would you see,
This emblematic figure well survey:
The porker's snout, not nice in diet, shows
The padlock shut, no secret he'll disclose.
Patient the ass, his master's rage will bear,
Swiftness in errand, the stag's feet declare.

Among other signs based on satire is the "Silent Woman", who is shown headless, and the one and only "Honest Lawyer" at King's Lynn, in Norfolk, who appears with his bewigged head under his arm. Equally amusing is "The Man With a Load of Mischief", a classic inn sign attributed to the great eighteenth century artist William Hogarth. A man is shown carrying home his intoxicated wife who has been over-indulging in gin at the local public house. It was originally painted for a coaching tavern which stood in Oxford Street, London, but there is a copy of the sign outside a small village inn at Blewbury, in Berkshire.

The most wonderful of all inn signs, however, was erected by a wealthy landlord of the "White Hart" at Scole, Norfolk. This must have cost a small fortune, since it consisted of more than twenty-five life-sized human and animal figures supported on twin beams that stretched from one side of the street to the other. Unfortunately, it had to be dismantled about a century ago as it was considered dangerous to passers-by.

Many signs, old and new, command attention to-day because of their unusual character. That of the "Cat and Fiddle" at Hinton Admiral, in the New Forest, is a beautiful example of the wood-carver's art, depicting every character and object in the traditional nursery rhyme. Another Hampshire inn—the "Trusty Servant" at Minstead, near Southampton—can claim the most satirical of all signs of this kind in England. The supposedly reliable servant is shown with a pig's snout, the ears of an ass, and a stag's feet, an explanation of which is given in a rhyme underneath:

Inn sign of The Old Boot at Sarratt, Herts.



Sign of the Trusty Servant at Minstead, New Forest.

One of the best of all modern signs hangs outside the "Daylight Inn" at Petts Wood, in Kent; like the inn itself, it is a memorial to William Willett, the Chelsea builder who first conceived the idea of daylight saving time, which has since been adopted by many countries throughout the world. It shows two clock dials, with the hands set an hour apart, superimposed upon a lively representation of the sun. The sign is remarkable for its fine colouring and was painted by Ralph Ellis, a gifted artist who has designed many other delightful and imaginative inn signs in the south of England.

Signs in which animals, both real and imaginary, figure have been popular since the earliest days. Often they go together in pairs such as the "Dog and Duck" (of sporting origin), the "Lion and Swan" or the "Hen and Chickens". Among imaginary beasts there is the "Flying Horse" at Nottingham and the "Flying Elephant", an unusual name for a little wayside inn at Clayton, on the Sussex Downs behind Brighton. Some of the famous coaching inns of England display large and life-like animal figures over their entrance porches. Outside the "Red Lion" at High Wycombe, Buckinghamshire, stands the proud and fiery-looking lion whose tail is said to have been twisted by the great Disraeli when he was making his first political speech from the porch roof. A wayside inn near Addington, Surrey, boasts a huge white bear, carved from stone,



which was previously the sign of a celebrated coaching house of that name which, until last century, stood in the heart of London, at Piccadilly Circus.

Unlike many of the interesting roadside objects of England's countryside, the inn signs belong as much to the present as to the past. The skill and ingenuity of English artist-craftsmen are upholding a charming and useful custom that forms a direct link with everyday life in the Middle Ages.

Sign of Cat and Fiddle, Hinton Admiral, Hants.



EDITOR'S NOTE-BOOK

Noel E. Odell is at present a Visiting Professor, from Cambridge University, at the Department of Geology and Geography of the University of British Columbia. He is a graduate of the Royal School of Mines, London; Ph.D. (Cantab.) and F.R.S. (Edin.) Dr. Odell is well known as a mountaineer; he accompanied two expeditions to Mount Everest (1924 and 1938), and he climbed Nanda Devi (25,640 ft.) in Himalaya in 1936, the highest completed ascent of any mountain. He has also climbed extensively in the Alps, Norway and the Canadian Rockies. Dr. Odell has served on scientific expeditions in Spitsbergen, Greenland, northern Labrador, etc. He holds the Livingstone Gold Medal of the Royal Scottish Geographical Society; the Andree Medal of the Royal Swedish Anthropological and Geographical Society; and the Cuthbert Peek Award of the R.G.S. Dr. Odell is the author of various papers on the geology, geomorphology and glaciology of the regions he has explored or visited, and he has written numerous articles on mountaineering subjects.

* * *

Lyn and Richard Harrington continue to explore Canada, recording their travels as they go, be it by canoe or bicycle, boat or train, dogteam or on foot. Ontario-born Mrs. Harrington, a graduate of the University of Toronto, does the writing and her English-born husband takes the photographs. Our readers will be familiar with their work in the Journal and in many other periodicals.

* * *

Will R. Bird is a native of Nova Scotia and a well known Canadian writer and lecturer. He served in World War I with the 42nd Royal Highlanders and then returned to writing. Besides a large number of short stories and articles, Mr. Bird is the author of many novels; his *Judgment Glen* in 1947 was co-winner of the Ryerson Press All-Canada Fiction Award. Mr. Bird is National President of the Canadian Author's Association.

W. H. Owens, a member of the British Institute of Journalists, is a frequent contributor to periodicals in Great Britain. He has travelled extensively in the British Isles and Europe and has made a special study of the British scene, writing with first-hand knowledge of crafts, customs and industries.

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AMONGST THE NEW BOOKS

Aids to Geographical Research

by John Kirtland Wright and Elizabeth Platt

(New York, Columbia University Press, 1947, \$4.50)

Of the many useful volumes published by the American Geographical Society in their Research series, none has been more constantly consulted by geographers and librarians than the first edition of this book, issued in 1923 also by the Society's Director, John K. Wright. The present edition, constituting No. 22 of the series, has been completely revised and brought up to date. Those who have consulted the wonderful research library of the Society, either in person or by correspondence, will wish to share in Dr. Wright's tribute to Miss Elizabeth Platt, its librarian from 1937 to 1943, whose gracious personality and remarkable ability in the organization of research made a visit to the library a most rewarding experience. She it was who had accumulated nearly all the references to bibliographies and periodicals that had appeared prior to 1942 and were not already listed in the first edition. Her death in May 1943 deprived the Society of a much-loved colleague and its director of a perfect collaborator.

It need hardly be said that the arrangement of the book is admirable. Designed more particularly to serve advanced students and professional workers, its value to librarians, also, can hardly be over-estimated. The Introduction is an illuminating essay on the nature of geographical studies followed by a general discussion of published aids to geographical research. The main part of the volume consists of selective lists of bibliographies, periodicals, atlases, gazetteers and other reference works. The main sections are: I, General Aids, subdivided under such headings as bibliographies of general reference works, general geographical bibliographies and library catalogues, geographical institutions, periodicals and serials, maps and cartography, atlases, etc. Section II covers Topical Aids, subdivided under historico-geographical studies, geographical education and methodology, physical and mathematical geography, geography of plants and animals, and human geography and other related fields. Section III contains Regional Aids and General Geographical Periodicals. Exhaustive and extensive as these lists are, their value is greatly enhanced by numerous annotations, cross references, and notes which furnish concrete examples of the way in which the contents of certain monumental periodicals have been made more readily available in the American Geographical Society's

library. In addition to the 37-page index there is an appendix of some eighteen pages consisting of a "Classified index of American professional geographers, libraries of geographical utility, and institutions engaged in geographical research." Both geographers and librarians will find this book indispensable.

As this appendix was based upon a questionnaire submitted only to two organizations of professional geographers, the Association of American Geographers and the Society for Professional Geographers, it contains few references to Canadian geographers and none to Canadian libraries of geographical utility. Canada has, perhaps, been slow to recognize the very valuable work done through the years by her geographers, many of whose researches may be found in the Transactions of the Royal Society of Canada and other learned institutions. Geographical exploration and research has been an important function performed by the officers of various government departments, notably by those of the Geological Survey. Partly for this reason an outstanding example of a Canadian "library of geographical utility" is that of the Geological Survey and National Museum, which possesses a large and unusually complete collection of the more important periodicals and serials in geography and its allied sciences as well as many rare and valuable books of travel. This is only one of a considerable number of Canadian reference libraries whose resources are available for geographical study and research. With the creation of faculties of geography in our universities, this field of knowledge is taking its rightful place with the sister sciences.

F. E. FORSEY

* * *

The Chagres:

River of Westward Passage

by John Easter Minter

(Clarke, Irwin & Company, Toronto, \$4.00)

This is the thirty-fifth volume in the Rivers of America series, and the first to concern itself with a river not in the United States. The Chagres is certainly worthy of this distinction for there can be few rivers in the New World with such a colourful history. From the time that Columbus first saw it in 1502 till its modern role as a part of the vast and intricate system of waterways concerned with the Panama Canal, it has seen Conquistadores, explorers, pirates such as Sir Henry Morgan, runaway slaves, railway builders, gamblers, thieves, cut-throats, and engineers, each bent on winning an honest living from the land or a dishonest one from his fellows.

The author has filled in many of the details, but one realizes only too clearly that far more had to be left out. Hurry and condensation seem to have been the two bugbears which dogged his steps and, as always, they have led to errors, such as the statement that "no place on the globe receives a higher concentration of rainfall". There are some dubious theories of migration of native peoples and some native customs are treated in an unnecessarily facetious manner.

The use of local technical terms without explanation, such as "boco" and "bamboola", is irritating.

One of the most serious defects is the absence of a good clear map of the Isthmus of Panama. There are two small scale ones, too cluttered to be helpful. The illustrations, too, seem to have presented problems. It is obvious that no contemporary photographs were to be had, but surely some good views of the river and its surroundings as they appear today would have been useful.

There are some nice pieces of writing in the book, one which appealed strongly to me being the funeral of Sir Francis Drake, which is beautifully handled. There is material in the book for a first rate moving picture.

DOUGLAS LEECHMAN

* * *

Saltwater Summer

by Roderick L. Haig-Brown

(Collins, Toronto, \$2.50)

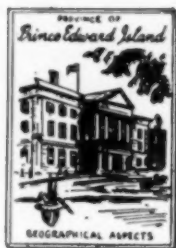
This is a book for boys, and a good one. The scene is laid among the salmon trollers of the British Columbia coast, and the author knows his characters and his setting as he knows the back of his hand. The plot is simple, but plausible; the action is thrilling, but follows naturally from the setting and the characters; the moral influence is good, though there isn't a hint of preaching from end to end of the book. The more I see of Haig-Brown's work the better I like it, and the better I like him, too.

DOUGLAS LEECHMAN

ANNUAL MEETING

The Canadian Geographical Society

The Society will hold its twentieth Annual General Meeting in the Lecture Hall, National Museum of Canada, Ottawa, on Friday, February 25th, 1949, at 8.30 p.m. Immediately following the meeting Mr. Bradford Washburn, Director of the Boston Museum of Science, will deliver an address on "The Conquest of Mount McKinley", an expedition which he led in 1947. Mr. Washburn will illustrate his address with coloured moving pictures and lantern slides.



THE CANADIAN GEOGRAPHICAL SOCIETY

Provincial Geographical Aspects Booklets

These sets of illustrated booklets, one dealing with each province in the Dominion, were first published by the Society in June 1948. They have been so well received that a second edition was required. We believe you will be interested in the following comments from leading Canadian newspapers:



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lets offers a wealth of authoritative information." REGINA LEADER POST.

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"The pamphlets enjoy an authenticity devoid of bias. As a means of acquiring readily assimilable facts, they commend themselves for home reading... a series well worth space on any bookshelf."

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"The booklets... have captured the interest and imagination of the general public, both adults and children."

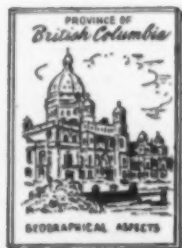
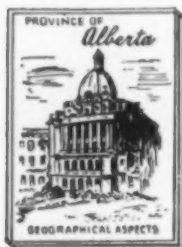
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For descriptive leaflet and order form write to The Canadian Geographical Society, 36 Elgin Street, Ottawa. A set of booklets costs \$2.75 to members, \$3.25 to non-members. Newfoundland booklet, available later, will be an additional 25 cents.

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The Alps

by R. L. G. Irving

(Clarke, Irwin & Company, Toronto, \$3.75)

In spite of its comparatively small size (5½ by 8½) the illustrations in this book convey most successfully the beauty and grandeur of the Alps. The choice of photographs is excellent and the reproduction very good indeed. There are 120 pages of text, and actually 131 illustrations, on special coated stock not included in the pagination, a most satisfying proportion. The publishers have been generous indeed and when we consider the difficulties confronting book publishers and printers in the British Isles today, B. T. Batsford Ltd. and the Western Printing Services Ltd. both deserve a sincere tribute of appreciation.

The text is interesting to read and filled with a warm love of the magnificent scenery of Switzerland and the neighbouring countries. For the average Canadian reader it may have no immediate application, but I should not think of going to visit the Alps without slipping a copy into my luggage.

DOUGLAS LEECHMAN

* * *

Tracks and Trailcraft

by Ellsworth Jaeger

(Macmillan, Toronto, \$4.75)

This is one of the best books on tracks and trails that I have ever seen, in fact I know of none to compare with it. Not content with discussing the tracks one is likely to see almost every winter in the snow, the author discusses prehistoric tracks preserved in rock, animal tracks from many parts of the world, the tracks of birds, amphibians, reptiles, insects, shellfish, and other forms of life, not forgetting the invisible tracks left along bird flightways and migration routes. Instructions are given for reproducing tracks so that a collection of them may be made, and there are various tracking games described which many boys will find good fun.



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The illustrations are very numerous and very good. The wealth of diagrams and drawings probably had a good deal to do with the regrettably high price of the book.

Not only are tracks as such considered, but there is also a good deal of material on other signs left by animals, such as buffalo wallows, bear claw marks on tree trunks, and the odours left by scent glands with which many animals are equipped.

Each animal is dealt with in turn and many unusual and little known facts are included, and at last I have discovered just who was responsible for the "tunnels" which we have all seen in juicy green leaves in summer.

A thoroughly fine job, and the author deserves many sincere congratulations.

DOUGLAS LEECHMAN

* * *

Suppression of the Rebellion in the North West Territories of Canada 1885

Edited by G. H. Needler

(University of Toronto Press, \$2.50)

This is a republication of General Sir Fred Middleton's own account of his campaign against Louis Riel in 1885 which first appeared in the *United Service Magazine* in 1893 and 1894, and which is not easily available to students. It is a short (pp. 70) and competent description of a campaign conducted in bitterly cold weather, at least in its initial stages, and brought to a successful conclusion promptly and efficiently.

In his capacity of editor, Dr. Needler points out that the General's account does not always square with the facts, but nowhere in his Introduction or in his Notes does he mention the significant fact that he himself was one of those who took part in the campaign, and that he writes from first hand knowledge of the events. He makes it clear that General Middleton was not popular with his men and that his tactics, even though successful, were not as skilful as they might have been.

DOUGLAS LEECHMAN.

* * *

Golden North

by Marie McPhedran

(Macmillan, Toronto, \$2.50)

The scene of this exciting and plausible book for boys is laid in the mining area of Northern Manitoba, the Golden North. The hero, age twelve, is Ricky Thompson who persuades his father and his "uncle" Jim, who are partners, to take him along on a summer's prospecting trip. The resulting adventures are enough to make any boy or girl wish to take part in a similar expedition, for Ricky grows to love the north and its strenuous life, to handle a canoe, to cook camp grub, blaze out a claim line, stake a claim, pan gold, and everything else that the old timers do. The author knows the country and writes in a convincing way, putting Ricky and his friends and enemies in an authentic background.

DOUGLAS LEECHMAN.